

Display

TD

Replacements of Parts

Display

18" Color TFT Monitor (SCD 1897-M)

Applicable for Part Number 30 80 991

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General Remarks

Safety Information

DHHS Regulations (Department of Health and Human Services) skipped (no high voltage).

Assuming a complete replacement, no contact points for line power, etc. are present.

NOTE

ARTD-002.732.17.. (Safety-technical Regulations for Installation and Repair) must be observed.

WARNING

Certain components inside the units are under high voltage!

If there is contact with these components, it can cause damage, serious bodily injury or death.

⇒ **Do not open the monitor housing; this is not necessary in a service situation.**

WARNING

A damaged power cable can lead to fire or electric shock!

If these components are operated with a damaged power cable, it can cause damage, serious bodily injury or death.

⇒ **Use only power cables that are in good condition! When disconnecting the power line, hold the power cable only by the connector.**

WARNING

If objects are inserted into the housing, this can cause electrical shock.

This can cause damage to the unit, to other damage, serious bodily injury or death.

⇒ **Do not insert objects into the housing!**

WARNING

When handling connection cables, no contact with the patient may be made.

This can cause damage, serious bodily injury or death of the patient.

⇒ **Do not connect the unit in the patient area!**

Monitor Remarks

- The SCD 1897-M is a high-resolution 18" display (46 cm).
- Prerequisite for the adjustment is the Instruction Manual that is shipped with each display.

- A laptop, etc. is not required; the adjustment is performed using the push-buttons on the side of the unit and an on-screen menu.
- The display can be controlled using RGB as well as S/W.
For configuration for S/W control, see the Instruction Manual.
- For technical data, etc., see the Instruction Manual.
- Video norm:
 - The display detects the video norm that is present and sets itself automatically to this norm.
 - "New" norms that have not yet been set, can (must) be set. The next time this norm is used, the display sets the norm again automatically.
 - There is separate set of parameters in the display for each norm. This means that each norm used must be set individually (also contrast / brightness).
- Pixel drop-outs:
 - Manufacturer-related pixel drop-outs are always possible; up to 15 pixels (light or dark) are permissible.
- Backlight control:
 - The backlight is automatically adjusted. This means that the maximum contrast that is set is retained as long as the control is not set to stop.
 - When set to control stop, the maximum contrast is will be less with lower emission or luminance. For the minimum values, see the chapter "System-related Adjustments". If there is a drop below the "minimum value", replace the display.

Repair / Troubleshooting

In a malfunction situation, the display is only replaced completely.

To adapt to the particular system, see chapter "Application-related Adjustments".

NOTE

Every defective display must be returned with an exact description of the error. It is virtually impossible to find sporadic and / or temperature-related errors or also system-related causes without a description of the malfunction.

Test and Auxiliary Equipment

- All required settings, see the Adjustment chapter, must be performed using the push-buttons on the side of the unit. A laptop is not required.
- "SMFit test meter" luminous density meter, see the SPC.

Adjustment Note

Tab. 1 Push buttons

All required adjustments are made using the push-buttons on the side of the unit.

The push-buttons are locked when shipped (new system).

For the function of the push-buttons, see the Instruction Manual included in the shipment.

Unlocking or locking them is done as follows:

- Press the "SET" button 1x.
- Press the "Up" button (arrow pointing up) 3x.

*Fig. 1:***NOTE**

Adjustments may be performed only after a warm-up time of 15 minutes!

NOTE

As a rule, the push-buttons are not locked in replacement units (from the E-warehouse).

They must be locked following installation.

General Remarks regarding System-related Adjustments

NOTE

-
- For the function of the push-buttons, see the Instruction Manual included in the shipment.
 - All values listed, including the listed tolerances, are "setting values".

The listed tolerances are not values for the constancy check of the display!
 - The monitor must be switched on at least 20 minutes prior to beginning the adjustment.
-

AX Application

AXIOM Artis

Size and Position

Check the size and position in the norm being used. The picture must be displayed "full screen".

The emergency mode norm is used "only" as a display; it is displayed in reduced size.

If this is not the case, if needed, the size and position (only position is possible) must be performed manually.

Frequency / Phase (Focus)

NOTE

This adjustment ensures that the picture is correct for the screen size.

Incorrect adjustment is manifested as unsharp focus.

The adjustment can be performed using the SMPTE test pattern (quick adjustment) or by generating a text page.

- Using SMPTE:

Tab. 2 SMPTE

Select the SMPTE test pattern in the system.

The 5 high-frequency line groups must be equally well visible!

The adjustment is performed under: => Menu => Other => using the sliders: Frequency and Phase

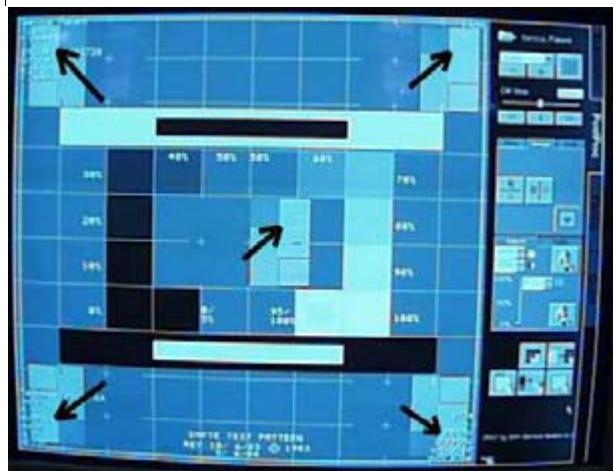


Fig. 2:

- Using the Text Page (more exactly adjustable)

Select Explorer to specify the background color of Notepad and to select Notepad.

Select Explorer:

- Select <**Utilities**> in the Service Main menu.
- Select <**Escape to OS**> in the Utilities (Source) window.
- Select <**NT Command Interpreter**> under Command.
- Enter <**explorer**> under Parameters.
- Start Explorer with "Enter".

Select Display (invert so that the highlighted elements appear on a black background):

- In "**My Computer**" => start "**Control Panel**".
- In the window on the right => double-click on "**Display**" to open it.
- Select "**Appearance**" in the menu bar.
- Select "**Marked Elements**" in display element.
- Select "**black**" for color.

Generate a text page with "mmmmm":

- Open "Notepad.exe" in C/Winnt.
- Open Notepad all the way (to cover the entire screen area).
- Fill approx. 3 lines with "mmmmmmm" => select the lines => copy => paste until the page is filled.
- Select the entire page; when this is done, the background becomes black and the characters are displayed white.
- Select => "Set Font.." under "Edit" => Arial / Regular / 12.
- The adjustment can now be performed using this image, a complete page full of "m..." in white type and a black background.
- Using the sliders for frequency and phase, adjust the entire screen area for optimum focus.

Brightness / Contrast Adjustment

NOTE

The measurement is made using the Mavo monitor.

When performing the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface.

Otherwise damage to the panel cannot be ruled out!

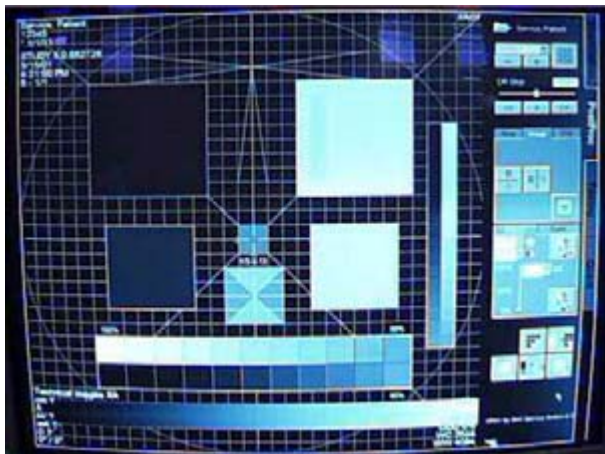


Fig. 3: Image1

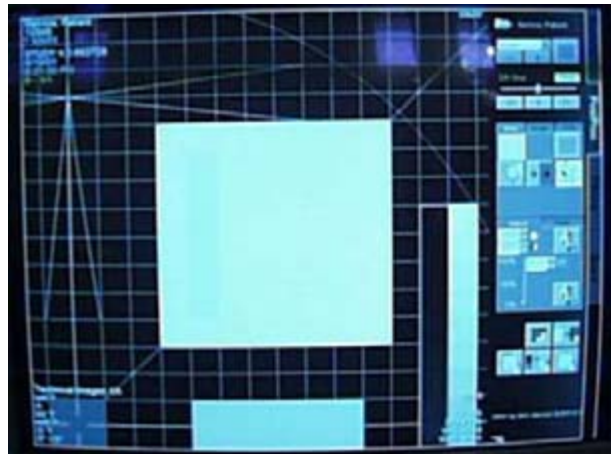


Fig. 4: Image1

NOTE**Contrast:**

Detection of the 95% fields in the 100% field (limitation) is adjusted using video gain (contrast).

Backlight:

The 100% field (maximum white) is adjusted using the backlight.

Brightness:

Adjustment of the black area (basic brightness and detection of the 5% field).

- Select the test pattern (Fig. 3 / p. 10).
 - Select zoom, drag the white area to the center of the screen (Fig. 4 / p. 10).
 - Set the slider for “**contrast**” to the maximum.
Adjust using contrast minus so that 95% is “well” visible in the 100% field.
 - Use the slider for “**backlight**” to adjust to 120, +/-5cd/m in the 100% field.
 - Drag the black field into the center of the screen.
 - Use the slider for “**brightness**” to adjust to 0.5, +/-0.1cd/m in the black field.
 - Alternately repeat both adjustments (backlight and brightness) until the specified values are reached.
 - Final Check: All steps in the test pattern must be detectable. If not, repeat the adjustment.

The operating buttons must be locked again!

Leonardo

NOTE

This display is operated at 1280 x 1024 pixels / 75 Hertz.

Size and Position

Check the size and position in the norm being used. The picture must be displayed "full screen".

If this is not the case, if needed, the size and position (only position is possible) must be performed manually.

Frequency / Phase (Focus)

NOTE

This adjustment ensures that the picture is correct for the screen size.

Incorrect adjustment is manifested as unsharp focus.

The adjustment can be performed using the SMPTE test pattern (quick adjustment) or by generating a text page.

• Using SMPTE:

Tab. 3 SMPTE

Select the SMPTE test pattern in the system.

The 5 high-frequency line groups must be equally well visible!

The adjustment is performed under: => Menu => Other => using the sliders: Frequency and Phase



Fig. 5: SMPTE Leonardo

• Using the Text Page (more exactly adjustable)

Select Explorer to specify the background color of Notepad and to select Notepad.

Select Explorer:

- Use the "Windows and E" buttons to open Explorer.
- Open "Control Panel" in Explorer.

Select Display (invert so that the highlighted elements appear on a black background):

- Open "Display" => select "Appearance" => under Items, select "Selected Items" => under Color, select "black" => accept with apply.

Generate a text page with "mmmm":

- Open "Notepad.exe" in C/Winnt.
- Open Notepad all the way (to cover the entire screen area).
- Fill approx. 3 lines with "mmmmmmm" => select the lines => copy => paste until the page is filled.
- Select the entire page; when this is done, the background becomes black and the characters are displayed white.
- Select => "Set Font.." under "Edit" => Arial / Regular / 12.
- The adjustment can now be performed using this image, a complete page full of "m..." in white type and a black background.
- Using the sliders for frequency and phase, adjust the entire screen area for optimum focus.

Brightness / Contrast Adjustment

NOTE

The measurement is made using the Mavo monitor.

When performing the measurement, make sure that the measuring sensor does not exert any pressure on the panel surface.

Otherwise damage to the panel cannot be ruled out!



Fig. 6: Image2

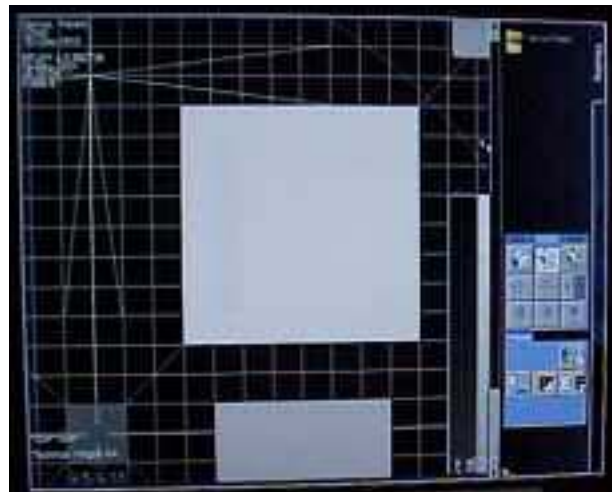


Fig. 7: Image2

NOTE

Contrast:

Detection of the 95% fields in the 100% field (limitation) is adjusted using video gain (contrast).

Backlight:

The 100% field (maximum white) is adjusted using the backlight.

Brightness:

Adjustment of the black area (basic brightness and detection of the 5% field).

- Select the test pattern ([Fig. 6 / p. 12](#)).
 - Select zoom, drag the white area to the center of the screen ([Fig. 7 / p. 12](#)).
 - Set the slider for “**contrast**” to the maximum.
Adjust using contrast minus so that 95% is “well” visible in the 100% field.
 - Use the slider for “**backlight**” to adjust to 120, +/-5cd/m in the 100% field.
 - Drag the black field into the center of the screen.
 - Use the slider for “**brightness**” to adjust to 0.5, +/-0.1cd/m in the black field.
 - Alternately repeat both adjustments (backlight and brightness) until the specified values are reached.
 - Final Check: All steps in the test pattern must be detectable. If not, repeat the adjustment.

The operating buttons must be locked again!

SP Application

Mammomat Novation DR

Replacing the TFT Monitor

It must be noted that the cabling on the back of the unit must be made in accordance with the designations.

Selecting the Test Images

The test images are located under "Service\Acquisition System\Quality Tests" with the designation "Display". Start the service software for this purpose.

- Select Service and Local Service in the menu bar under Options.
- Delete the password in the SW screen and click on OK.



Fig. 8: Mammomat Novation DR -1 Service SW

- Select the Acquisition System button in the Home menu.

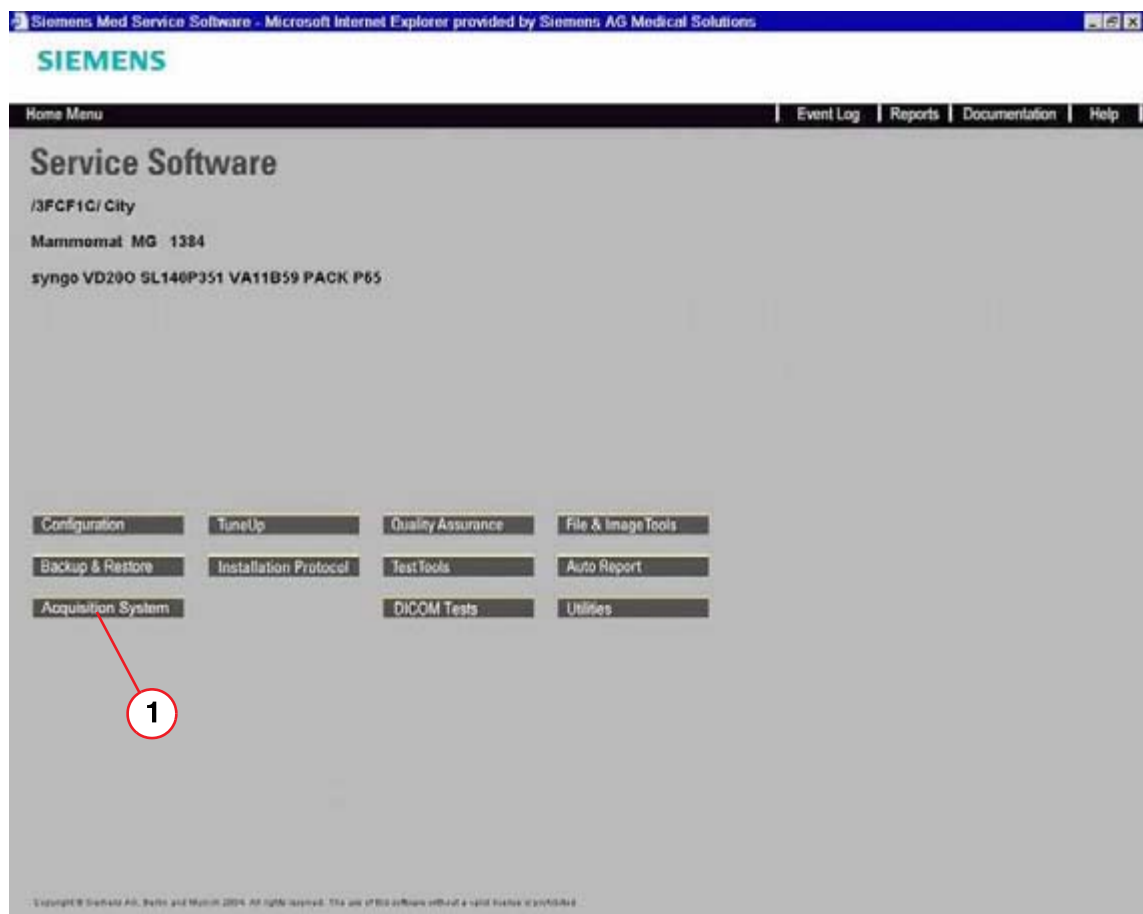


Fig. 9: Mammomat Novation DR -2 Service SW
Pos. 1 Acquisition system

- Under Acquisition System, Quality Tests, select the Link Display.

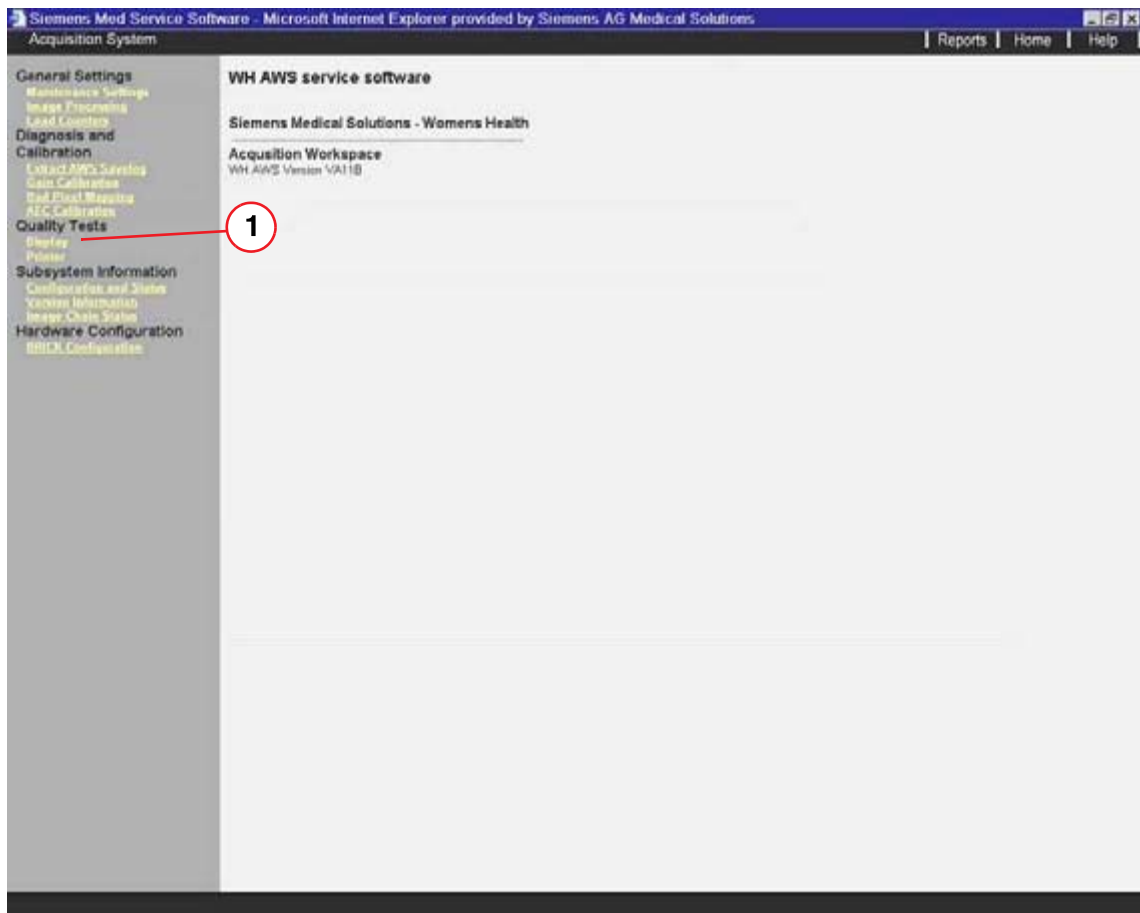


Fig. 10: Mammomat Novation DR -3 Service SW
Pos. Displays

- Then click on the Start button.

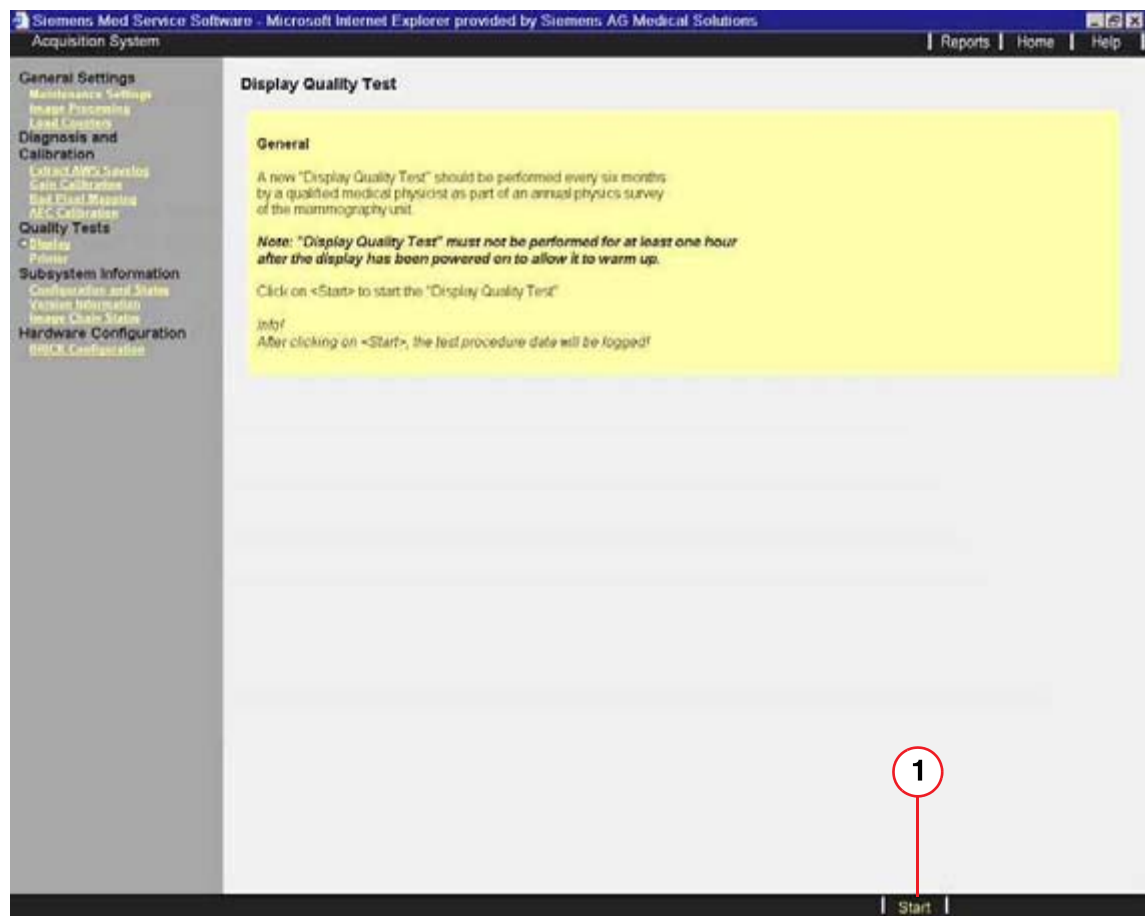


Fig. 11: Mammomat Novation DR -4 Service SW

Pos. 1 Start button

- Then select the test images.

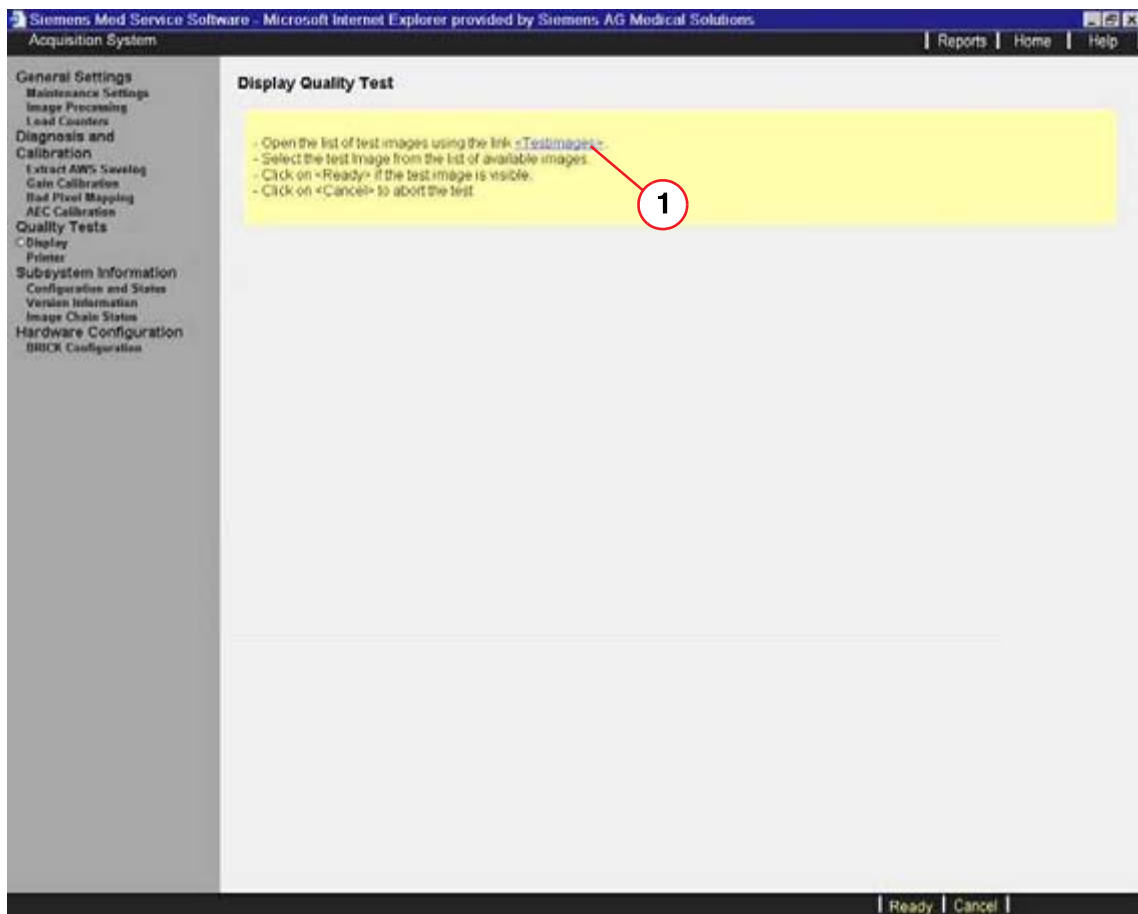


Fig. 12: Mammomat Novation DR -5 Service SW

Pos. 1 Test images

- Maximize the image (double-click on the top blue bar).

- The AWS test images and TFT Auto Calibration can now be used to adjust the frequency and phase.

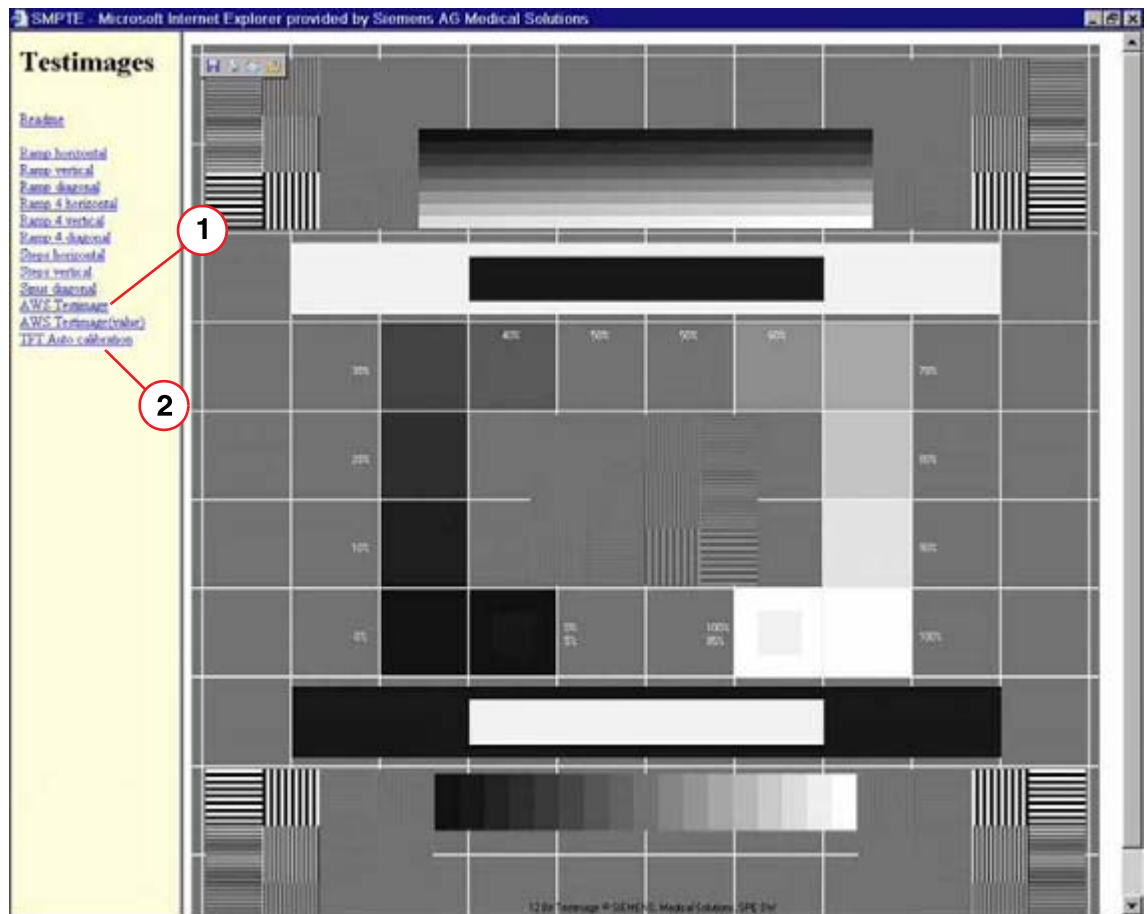


Fig. 13: Mammomat Novation DR - 6 Service SW

Pos. 1 AWS Test Images

Pos. 2 TFT Auto Calibration

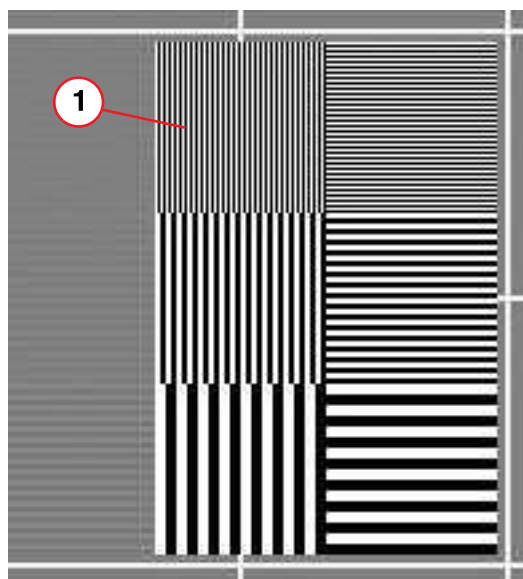


Fig. 14: Vertical bars on SMPTE

Pos. 1 Max. resolution

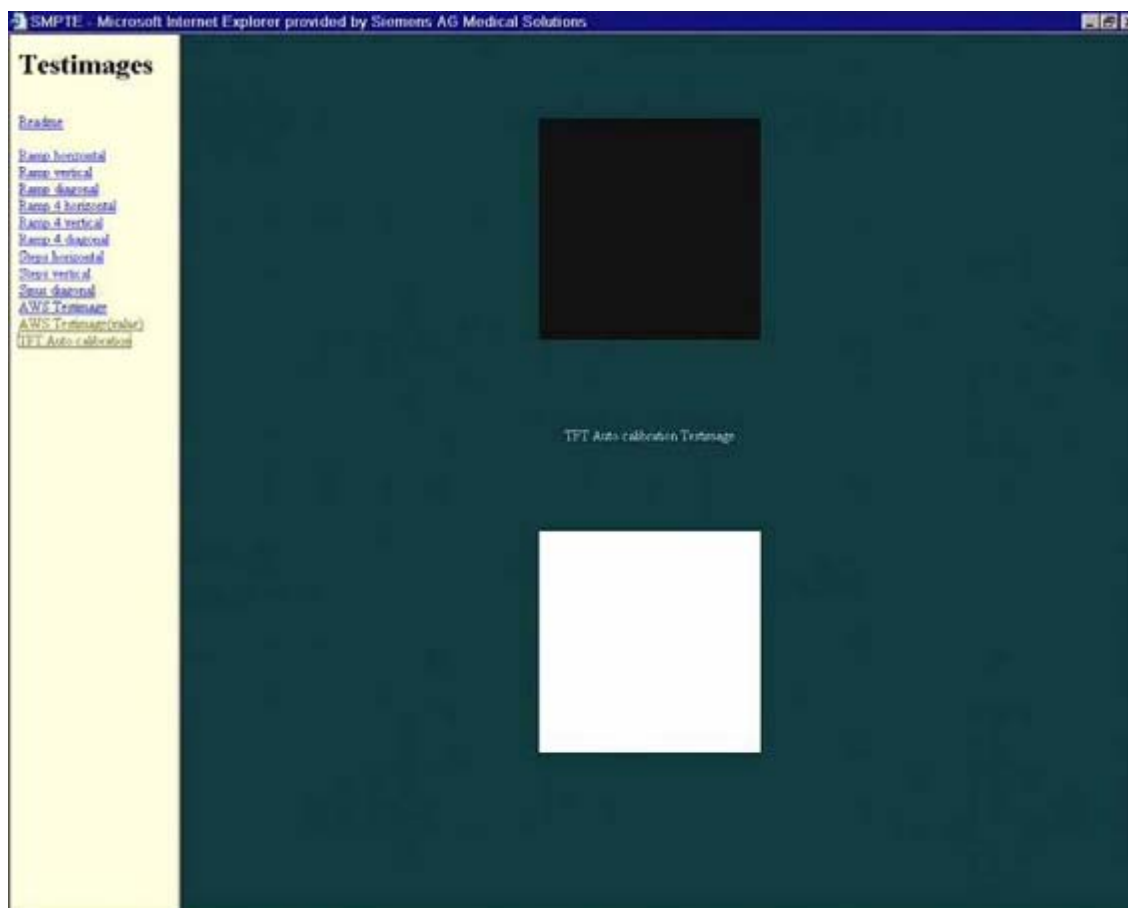


Fig. 15: Mammomat Novation DR -7 Service SW

Size / Position

The screen display must be "display filling". If this is not the case, the size and position must be performed, manually if required (only position is possible), using the Auto Adjust function.

Frequency/Phase

NOTE

With adjustment of the frequency and phase, it is ensured that the display to the display screen is correct.

- The adjustment is performed using the SMPTE test pattern (Fig. 13 / p. 19).
- Begin adjustment of the phase or frequency.

The region with the lowest horizontal resolution (vertical lines) must be displayed sharply, see (Fig. 14 / p. 19) or the green region (Fig. 15 / p. 20) must be displayed without disturbances or artefacts.

- Perform Auto Adjust:
 - Unlatch the keyboard on the right side of the monitor, see (Tab. 1 / p. 6).
 - Select the "Auto" position using the "Menu button".
 - Press the "Up arrow" 1x.
 - Select "Perform Auto" position using the "Menu" button.
 - Press the "Up arrow" 1x.

Auto calibration will be performed.

- Then check the frequency and phase using the test images (Fig. 13 / p. 19), (Fig. 15 / p. 20). If they are correctly adjusted, continue with the point (Brightness / Contrast / p. 21).

If frequency and phase are not optimally adjusted despite "auto calibration", they are adjusted as follows:

- Select the "Others" position using the "Menu" button.
- Press the "Up arrow" 1x.
- Select the "Phase/Frequency" position, press the "Up arrow" 1x.
- Adjust the frequency using the "Up/Down arrow" buttons and the test images.
- Select the Phase button with "Menu".
- Adjust the phase.

Brightness / Contrast

NOTE

Adjustment of brightness and contrast is performed using the SM-Fit test meter.

When performing the measurement, make sure that the measuring sensor does not exert any mechanical pressure on the panel surface.

- Select the test pattern (Fig. 13 / p. 19).
 - Adjust the slider for "**Contrast**" so that the 95% field is "well" visible in the 100% field.
 - Use the slider for "**backlight**" to adjust to 120, +/-5cd/m in the 100% field.
 - Use the slider for "**brightness**" to adjust to 0.5, +/-0.1cd/m in the black field.
 - Alternately repeat both adjustments (backlight / brightness / contrast) until the specified values are reached.
 - Final Check: All steps must be detectable in the test pattern. If not, repeat the adjustment.
- After completing the adjustments, latch the control buttons by pressing the following buttons sequentially:
 - "SET" button 1x,
 - Press and hold the "Up arrow" key at least 3 sec.

- Under System-specific Adjustments:
Chapter “ SP Application => Mammomat Novation DR “ => Note deleted and Selection for Test Images changed.